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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Parce *et al.*

Appl. No.: 10/038,245

Filed: October 24, 2001

**For: High Throughput Screening Assay
Systems in Microscale Fluidic Devices**

Confirmation No.: 1258

Art Unit: 1641

Examiner: Christopher Chin

Atty. Docket: 2052.002000C/LEA/EDH

REQUEST BY APPLICANTS FOR INTERFERENCE
PURSUANT TO 37 CFR § 1.607

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Pursuant to the provisions of 37 C.F.R. § 1.607 and 1.643, Caliper Technologies Corp., assignee of record of the entire interest of the present application, requests the declaration of an interference between the present application and U.S. Patent No. 6,136,272 to Weigl *et al.*; issued on October 24, 2000 ("the Weigl '272 patent"). A copy of the Weigl '272 patent is enclosed.

The present application is a continuation of Application No. 09/346,660, filed July 1, 1999, which is a continuation of Application No. 08/671,987, filed June 28, 1996. The present application claims the benefit under 35 U.S.C. § 120 of the earlier filing date of Application No. 08/671,987, filed June 28, 1996. Accordingly, the present application is entitled to an effective filing date at least as early as June 28, 1996.

The face of the Weigl '272 patent indicates that it was filed on September 26, 1997. Accordingly, the effective filing date of the present application is before the effective filing date of the Weigl '272 patent.

I. PROPOSED COUNT

In accordance with 37 C.F.R. § 1.607(a)(2), the following counts are proposed:

Proposed Count 1

A device for joining a second laminar fluid layer to, or removing a second laminar fluid layer from, a first laminar fluid layer, said device comprising:

a first plate having a first surface and a second surface, said first plate having formed therein:

a main flow channel formed in said first surface, said main flow channel having an upstream end, a downstream end, a top and a bottom;

a tributary channel having a first end and a second end;

a first inlet port in fluid connection with said upstream end of said main flow channel;

a first outlet port in fluid connection with said downstream end of said main flow channel;

a first tributary port in fluid connection with said second end of said tributary channel;

a first bridge channel having a first end and a second end, said second end of said first bridge channel in fluid connection with said first end of said first tributary channel, said first end of said first bridge channel in fluid connection with said main flow channel, joining along said bottom of said main flow channel, between said upstream end and said downstream end of said main flow channel; and

a second plate sealed to said first surface of said first plate.

Proposed Count 1 corresponds exactly to claim 1 of the Weigl 272 patent and claim 75 of the present application.

Proposed Count 2

A device for introducing a second laminar fluid layer to, or removing a second laminar fluid layer from, a first laminar fluid layer, said device comprising:

a main flow channel, characterized by a width which is the distance between the channel top and channel bottom, and a depth which is the distance between the channel sides, said width being smaller than said depth, and said main flow channel having an upstream end and a downstream end;

a first inlet port in fluid connection with said upstream end of said main flow channel;

a first outlet port in fluid connection with said downstream end of said main flow channel;

a first tributary channel having a first end and a second end;

a first tributary port in fluid connection with said second end of said tributary channel;

a first bridge channel having a first end and a second end, said second end of said first bridge channel in fluid connection with said first end of said first tributary channel, said first end of said first bridge channel in fluid connection with said bottom of said main flow channel between said upstream end of said main flow channel and said downstream end of said main flow channel.

Proposed Count 2 corresponds exactly to claim 31 of the Weigl '272 patent and claim 87 of the present application.

II. IDENTIFICATION OF CLAIMS CORRESPONDING TO PROPOSED COUNTS

A. Weigl '272 Patent Claims

Claim 1 of the Weigl '272 patent corresponds exactly to proposed Count 1.

Claims 2-30 of the Weigl '272 patent correspond substantially to proposed Count 1, in the sense of 37 C.F.R. § 1.601(f) in that they are not identical to the count but define the same patentable invention under 37 C.F.R. § 1.601(n).

Claim 31 of the Weigl '272 patent corresponds exactly to proposed Count 2. Claims 32-34 of the Weigl '272 patent correspond substantially to proposed Count 2, in the sense of 37 C.F.R. § 1.601(f) in that they are not identical to the count but define the same patentable invention under 37 C.F.R. § 1.601(n).

B. Claims of the present application

The present application, as amended in a Preliminary Amendment filed October 24, 2001, contains claims 75-89.

Claim 75 corresponds exactly to proposed Count 1. Claims 76-87 of the present application correspond substantially to proposed Count 1, in the sense of 37 C.F.R. § 1.601(f) in that they are not identical to the count but define the same patentable invention under 37 C.F.R. § 1.601(n).

Claim 87 corresponds exactly to proposed Count 2. Claims 88-89 of the present application correspond substantially to proposed Count 2, in the sense of 37 C.F.R. § 1.601(f) in that they are not identical to the counts but define the same patentable invention under 37 C.F.R. § 1.601(n).

III. APPLICATION OF CLAIMS 75-89 TO THE DISCLOSURE OF THE PRESENT APPLICATION

Attached Table 1 was submitted with the above-mentioned Preliminary Amendment. Table 1 sets forth examples of support in the present specification for each claim feature of

claims 75-89. Accordingly, the subject matter of claims 75-89 is disclosed in the present application at least as set forth in Table 1.

IV. 35 U.S.C. § 135(b)

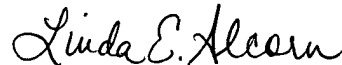
The claims identified as corresponding to the counts were presented in a Preliminary Amendment filed October 24, 2001. As the Preliminary Amendment was filed within one (1) year of the issue date of the Weigl '272 patent, i.e., October 24, 2000, Applicants have complied with 35 U.S.C. § 135(b).

V. CONCLUSION

For the foregoing reasons, it is respectfully requested that an interference be declared between the present application and the Weigl '272 patent.

Respectfully submitted,

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TABLE 1

	U.S. Patent No. 6,136,272	Present Application
<p>Claim 1 in '272 patent. Claim 75 in present application.</p>	<p>A device for joining a second laminar fluid layer to, or removing a second laminar fluid layer from, a first laminar fluid layer, said device comprising:</p> <p>a first plate having a first surface and a second surface, said first plate having formed therein:</p> <p>a main flow channel formed in said first surface, said main flow channel having an upstream end, a downstream end, a top and a bottom;</p> <p>a tributary channel having a first end and a second end;</p> <p>a first inlet port in fluid connection with said upstream end of said main flow channel;</p> <p>a first outlet port in fluid connection with said downstream end of said main flow channel;</p> <p>a first tributary port in fluid connection with said second end of said tributary channel;</p>	<p>The present invention generally provides devices comprising microscale channel networks whereby fluid components are flowed within and out of the microscale channels. For example, Figure 5, and accompanying text on page 25, line 33 through page 27, line 3 illustrates one such channel network.</p> <p>Page 13, lines 39-31 describes a first plate, i.e., a substrate having a first surface and a second surface.</p> <p>Page 14, lines 25-35 describes microscale channels fabricated into a surface of a substrate. For example, Figure 5, element 510 is one such main flow channel having an upstream end and a down stream end.</p> <p>Figure 5, element 524 illustrates an example of a tributary channel having a first end and a second end.</p> <p>Figure 5, element 514 illustrates a first inlet port in fluid connection with an upstream end of the main flow channel 510.</p> <p>Figure 5, element 518 illustrates a first outlet port in fluid connection with an upstream end of the main flow channel 510.</p> <p>Figure 5, element 520 is an example of a first tributary port in fluid connection with a second</p>

	<p>a first bridge channel having a first end and a second end, said second end of said first bridge channel in fluid connection with said first end of said first tributary channel, said first end of said first bridge channel in fluid connection with said main flow channel, joining along said bottom of said main flow channel, between said upstream end and said downstream end of said main flow channel; and</p> <p>a second plate sealed to said first surface of said first plate.</p>	<p>end of said tributary channel.</p> <p>Figure 5, element 526 illustrates a bridge channel having a first end and a second end, wherein the first end intersects the tributary channel and the second end intersects the main channel 510.</p> <p>Page 15, lines 19-29 provide that the surface or plate comprising the microfluidic channels is integral with another plate or cover layer.</p>
Claim 2 in '272 patent. Claim 76 in present application.	The device of claim 1/75 wherein said tributary channel is formed in said first surface of said first plate.	Page 4, lines 31-33 describes substrate with multiple channels formed in the same surface of the substrate. See also page 14, lines 25-27 for description of channel layouts in a surface of a substrate. Figures 1 and 5 provide separate examples of channels in a surface of a substrate.
Claim 4 in '272 patent. Claim 77 in present application.	The device of claim 2/76 wherein said second plate is optically transparent.	Page 14, lines 13-19 describes optically transparent substrates that may be used as a second plate in the devices of the present invention.
Claim 7 in '272 patent. Claim 78 in present application.	The device of claim [6]1 /75 wherein said bridge channel cuts through said first plate.	Figure 5 illustrates a bridge channel 526 which cuts horizontally through the first plate or substrate to connect the main channel 510 with the tributary channel 524.
Claim 15 in '272 patent. Claim 79 in present application.	The device of claim 1/75 comprising a plurality of tributary channels and a plurality of bridge channels, each of said bridge channels in fluid connection with one of said tributary channels and with said bottom of said main flow channel.	Page 27, lines 26-37 describes alternate embodiment of the device of claim 1, wherein multiple channel networks are described. Figures 3 and 4 A-F illustrates an embodiment with a plurality of bridge channels 310-324 and a plurality of tributary channel segments, shown

		collectively as channel 304 and a main channel 308 wherein each of the bridge channel is in fluid connection with one tributary channel segment and the bottom of the main flow channel 308.
Claim 16 in '272 patent. Claim 80 in present application.	The device of claim 1/75 wherein said main flow channel has a depth between about 100 micrometers and about 1 millimeter.	The present invention provides devices with microfabricated substrates. At least one cross-section dimension of the channels is between 0.1 to 500 μ m. See page 3, lines 33-36.
Claim 17 in '272 patent. Claim 81 in present application.	The device of claim 1/75 wherein said main flow channel has a depth between about 300 micrometers and about 800 micrometers.	The present invention provides devices with microfabricated substrates. At least one cross-section dimension of the channels is between 0.1 to 500 μ m. See page 3, lines 33-36.
Claim 18 in '272 patent. Claim 82 in present application.	The device of claim 1/75 wherein said main flow channel has a width between about 20 micrometers and about 200 micrometers.	Page 4, lines 33-36 describes channel cross-section dimensions in the range of 0.1 to about 500 μ m.
Claim 19 in '272 patent. Claim 83 in present application.	The device of claim 1/75 wherein said main flow channel has a width between about 20 micrometers and about 80 micrometers.	Page 4, lines 33-36 describes channel cross-section dimensions in the range of 0.1 to about 500 μ m.
Claim 20 in '272 patent. Claim 84 in present application.	The device of claim 1/75 wherein said main flow channel has an aspect ratio small enough to allow diffusion of particles from a second laminar fluid layer into a first laminar fluid layer at a rate which provides a detectable change in property.	The main flow channel has at least one cross-sectional dimension in the range of 0.1 to 500 μ m allowing laminar flow of fluid components to interact and cause a detectable change in a property. See page 3, line 38 through page 4, line 6. Also, See page 17, line 29 through page 18, 16.
Claim 29 in '272 patent. Claim 85 in present application.	The device of claim 1/75 wherein said first end of said bridge channel is in fluid connection with said bottom of said main flow channel across the entire depth.	Top and Bottom are relative terms. Therefore, the connection of bridge channel 526 in Figure 5, with main flow channel 510 is a description of a fluid connection between the two wherein the bridge channel connects

		with the main channel across the entire depth.
Claim 30 in '272 patent. Claim 86 in present application.	The device of claim 1/75 wherein said first end of said bridge channel is in fluid connection with said bottom of said main flow channel along only a portion of the depth.	See Figure 5 for the fluid connection between a bridge channel 526 and main flow channel 510 along the depth of the main channel. Please note that the entire depth of a channel is also "a portion of the depth".
Claim 31 in '272 patent. Claim 87 in present application.	<p>A device for introducing a second laminar fluid layer to, or removing a second laminar fluid layer from, a first laminar fluid layer, said device comprising:</p> <p>a main flow channel, characterized by a width which is the distance between the channel top and channel bottom, and a depth which is the distance between the channel sides, said width being smaller than said depth, and said main flow channel having an upstream end and a downstream end;</p> <p>a first inlet port in fluid connection with said upstream end of said main flow channel;</p> <p>a first outlet port in fluid connection with said downstream end of said main flow channel;</p> <p>a first tributary channel having a first end and a second end;</p>	<p>The present invention generally provides devices comprising microscale channel networks whereby fluid components are flowed within and out of the microscale channels. For example, Figure 5, and accompanying text on page 25, line 33 through page 27, line 3 illustrates one such channel network.</p> <p>Figure 5, element 510 is one such main flow channel having an upstream end and a downstream end.</p> <p>Figure 5, element 514 illustrates a first inlet port in fluid connection with an upstream end of the main flow channel 510.</p> <p>Figure 5, element 518 illustrates a first outlet port in fluid connection with an upstream end of the main flow channel 510.</p> <p>Figure 5, element 524 illustrates an example of a tributary channel having a first end and a second end.</p>

	<p>a first tributary port in fluid connection with said second end of said tributary channel;</p> <p>a first bridge channel having a first end and a second end, said second end of said first bridge channel in fluid connection with said first end of said first tributary channel, said first end of said first bridge channel in fluid connection with said bottom of said main flow channel between said upstream end of said main flow channel and said downstream end of said main flow channel.</p>	<p>Figure 5, element 520 is an example of a first tributary port in fluid connection with a second end of said tributary channel.</p> <p>Figure 5, element 526 illustrates a bridge channel having a first end and a second end, wherein the first end intersects the tributary channel and the second end intersects the main channel 510.</p>
<p>Claim 32 in '272 patent. Claim 88 in present application.</p>	<p>32. The device of claim 31/87 wherein said device comprises a first plate having formed therein said main flow channel and said tributary channel.</p>	<p>Page 14, lines 25-35 describes microscale channels fabricated into a surface of a substrate.</p>
<p>Claim 34 in '272 patent. Claim 89 in present application.</p>	<p>34. The device of claim 32/88 wherein said device further comprises a second plate sealed to said first plate.</p>	<p>Page 15, lines 19-29 describes a second plate or substrate sealed to the channeled substrate, i.e., first plate.</p>